

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 94-59
NPDES PERMIT NO. CA0001350

WASTE DISCHARGE REQUIREMENTS
FOR
SAN DIEGO GAS AND ELECTRIC COMPANY
ENCINA POWER PLANT
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

1. On January 28, 1985, this Regional Board adopted Order No. 85-10, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0001350, Waste Discharge Requirements for San Diego Gas & Electric Company, Encina Power Plant, San Diego County. Order No. 85-10 established waste discharge requirements for the combined discharge of up to 860.3 million gallons per day (MGD) of elevated temperature once-through cooling water and other waste discharges from the San Diego Gas & Electric Company (SDG&E) Encina Power Plant to the Pacific Ocean.
2. On June 29, 1989, Mr. G. D. Cotton, Senior Vice President, Engineering and Operations, SDG&E, submitted a complete report of waste discharge (RWD), dated June 28, 1989, in application for renewal of the Encina Power Plant NPDES permit. SDG&E submitted amendments to the original application dated December 17, 1993 and January 28, 1994.
3. The SDG&E Encina Power Plant is located at 4600 Carlsbad Boulevard, in the southwest sector of the City of Carlsbad, California, adjacent to the Agua Hedionda Lagoon on the Pacific Ocean. The Encina Power Plant is in Section 18, T12S, R4W, SBBM.
4. The Encina Power Plant has five steam turbine generator units and one gas turbine generator unit. The generator units burn primarily natural gas, but are capable of conversion to fuel oil should economic or natural gas curtailment conditions necessitate. Though each of the units operates independently, the steam turbine generator units share the facility's once-through cooling water system. The gas turbine generator is air cooled. The table below summarizes each unit's capacity and start-up date.

Unit	Date on Line	Capacity
1	1954	107 MW
2	1956	104 MW
3	1958	110 MW
4	June 1973	287 MW
5	November 1978	315 MW
Gas Turbine	1968	<u>16 MW</u>
Total Plant Capacity		939 MW

The total rated net generating capability (based on peak operations in summer, using oil fuel) of the Encina Power Plant is 939 MW.

5. At full capacity, the combined discharge of wastewater from the Encina Power Plant to the ocean is 862.500 MGD of which 857.290 MGD is once-through cooling water. Currently, the balance of the service water is obtained from the municipal water supply. However, SDG&E proposes to install a seawater desalination plant to provide a secondary water supply for the plant. Seepage, groundwater pumping and stormwater runoff account for approximately 2.0 MGD in additional plant flow. These flows fluctuate over time.

Cooling water is withdrawn from the Pacific Ocean via the Agua Hedionda Lagoon. After passing through the intake structure, trash racks and traveling screens, the water is pumped through the condensers for the steam turbine generator units. The amount of cooling water required is dependent upon the number of units in operation. After passing through a discharge pond, the Encina Power Plant discharges heated water and various in-plant wastes to the Pacific Ocean at Latitude 33° 08'17" N, Longitude 117° 20' 22" W.

6. The Encina Power Plant has the following wastewater discharges to the ocean:

- (a) Once-Through (Non-contact) Cooling Water
- (b) Low Volume Wastes
- (c) Metal Cleaning Wastes
- (d) Stormwater Runoff

For purposes of this Order, low volume wastes and metal cleaning wastes shall constitute in-plant wastes as referred to in Chapter IV of the Ocean Plan.

7. A more detailed breakdown of wastewater discharges from the Encina Power Plant is tabulated below:

Wastewater Discharge	Maximum Flow (MGD)
(a) Once-Through (Non-Contact) Cooling Water	857.290
(1) Condenser cooling	
(2) Cooling water pump lubrication and seal water	
(b) Low Volume Wastes	3.8025
(1) Boiler blowdown	
(2) Evaporator blowdown	
(3) Sample drains	
(4) Floor drains	
(5) Demineralizer	
(6) Softeners	
(7) Dealkalizer	
(8) Condenser cleaning	
(9) Freshwater reverse osmosis (RO) brine	
(10) Seepage and ground water pumping	
(11) Seawater RO brine/backwash	
(12) Fuel line/tank hydrotest	
(13) Sand filter backwash	
(14) Portable demineralizer rinse flush	
(15) RO membrane cleaning	
(c) Metal Cleaning Wastes	0.7971
(1) Boiler chemical cleaning	
(2) Hypochlorinator chemical cleaning	
(3) Evaporator chemical cleaning	
(4) Air heater wash	
(5) Boiler fireside wash	
(6) Selective catalytic reduction wash	
(d) Stormwater Runoff	0.61

The above information is also diagramed in a water flow schematic prepared by SDG&E and is presented in Attachment A of this Order.

The combined discharge of wastewater from the Encina Power Plant to the ocean, at full capacity, of 862.500 MGD represents the total flows of: once-through cooling water, low volume wastes, metal cleaning wastes, and stormwater runoff. Sanitary wastes are discharged to the municipal sewer system for treatment and disposal.

Once-through cooling water, boiler blowdown, freshwater RO brine, seawater RO brine/backwash, fuel line/tank hydrotest,

stormwater runoff, and seepage and ground water pumping are discharged to the Pacific Ocean without treatment. The balance of the low volume wastes and the metal cleaning wastes are treated before discharge to the ocean.

8. A United States Environmental Protection Agency (USEPA) Form 2C Permit Application was submitted as part of the RWD. Table 1 summarizes the analytical data for those pollutants detected in the effluent at concentrations greater than the intake concentrations. The analytical data below is based on the analysis of single grab samples collected from the influent and combined effluent. The 2C scan for Encina Power Plant indicates that none of the hazardous chemicals stored at the facility were present in the effluent at the time of sampling.

Table 1

Pollutant	Units	Influent Concentration	Effluent Concentration
Biochemical Oxygen Demand BOD ₅ @ 20° C	mg/l	2.3	4.3
Total Organic Carbon	mg/l	1.0	117
Ammonia (expressed as nitrogen)	mg/l	0.07	0.09
Bromide	mg/l	54	55
Sulfate	mg/l	2140	2250
Boron	mg/l	3.4	3.6
Iron	mg/l	<0.7	<1.2
Magnesium	mg/l	1030	1035
Zinc	mg/l	<0.03	<0.04
Color	color units	3	7

mg/l = milligrams per liter

9. Intermittent chlorine treatment is used to minimize formation of slime, which occurs in the condenser tubes if control measures are not practiced. At the Encina Power

Plant, sodium hypochlorite is manufactured on-site as needed. It is produced electrolytically from sodium chloride in the seawater. Seawater from the intake is pumped through each of the two hypochlorinators, which are comprised of electrolytic cell modules arranged in series. The hypochlorite produced is fed into a holding tank, where it is diluted with intake water. Then the sodium hypochlorite solution is injected to the channel immediately upstream of the once-through cooling water and salt water service pump suctions for each unit. Each injection point is individually controlled. Hypochlorination is conducted for about five minutes per hour per unit on a timed cycle each day. This method of chlorination will result in a minimal chlorine residual in the cooling water being discharged to the ocean. In addition to the chlorine treatment, sodium bromide may be used as a chlorine enhancer.

A bromide additive (sodium bromide), which reacts with chlorine to form hypobromous acid, and a biodepersant (Nalco Sure Cool 1367) were tested between 1989 and 1991 at the SDG&E South Bay Power Plant for their ability to control biological fouling on the cooling water side of the condensers. Based on testing, SDG&E may use sodium bromide and the biodepersant (or equivalent), in conjunction with sodium hypochlorite, in the future at the Encina Power Plant. Test methods for total residual chlorine (TRC) measure total residual oxidants, which includes hypobromous acid. Consequently, the TRC effluent limit in this permit regulates the discharge of bromide.

10. Encrusting organisms in the early stages of development are small enough to pass through the trash racks and screens, and enter the intake tunnels. The encrusting organisms can attach themselves to the tunnel walls, traveling water screens, and other parts of the cooling water system. If not removed, the encrusting organisms grow and accumulate at a rate of approximately 1000 cubic yards over a 6-month period. These accumulations restrict the flow of cooling water to and through the condensers, causing a rise in the condenser operating temperature and the temperature of the discharged once-through cooling water. Although intermittent chlorination is practiced at Encina, only the condensers are chlorinated. Due to the ability of encrusting organisms to withstand intermittent exposure to chlorine, to effectively control biofouling of the cooling water intake structures with chlorination would require continuous chlorination of the entire intake system. Continuous chlorination is not considered a viable option because it requires the addition of large volumes of chlorine on a continuous basis. Consequently, in order to

prevent encrusting organisms from developing to any significant size or quantity, a thermal tunnel recirculation treatment procedure (heat treatment procedure) is used periodically (at approximately five to eight week intervals). The treatment kills the encrusting organisms, which release from the surfaces and wash through the condensers to the ocean with the cooling water discharge, thus reducing the need for maintenance outages for manual cleaning of the once-through cooling water inlet tunnels and condensers. This practice also helps to maintain a lower possible temperature rise across the condensers, thereby improving plant efficiency, and reducing normal plant cooling water discharge temperatures.

11. Heat treatment is performed by restricting the flow of cooling water from the lagoon and recirculating the condenser discharge water through the conveyance tunnels and condensers until the inlet water temperature is increased to the treatment temperature. Recirculation of the cooling water is accomplished through a cross-over tunnel located approximately 120 feet from the discharge, adjacent to the intake channel. The temperature is raised to 105°F in the intake tunnels and maintained (heat soak) for approximately two hours, which has proven to be adequate in killing and removing encrusting organisms. Each time the cooling water passes through the condensers, it picks up additional heat rejected from the steam cycle. During a heat treatment procedure, each pass can add up to 15°F to the cooling water temperature, resulting in effective treatment temperatures of up to 105°F at the intake tunnels. Because the cooling water continues to circulate and the generator units continue to operate, the post-condenser temperature in the discharge channel can reach 120°F. To maintain the treatment temperature of up to 105°F during the heat soak phase (and to prevent the continued cooling water heat build-up), additional lagoon water is blended into the cooling water system and a corresponding volume of water is discharged to the Pacific Ocean to balance against the heat added at the condensers. The target heat treatment duration is 2 hours and represents the period of time at the target temperature (105°F in the intake tunnels) and not the time required to reach the target temperature and the time to return to normal operation. The total time required for the heat treatment procedure, including temperature buildup and cool-down, is approximately seven to nine hours. Because the cooling water discharge is restricted during the heat treatment in order to recirculate the heated effluent, the plant's discharge flow rate is reduced to approximately 7 to 45 percent of its full flow rate during normal operations.

12. RO pretreatment chemicals are used to prevent RO membrane scale formation and organic fouling on the membranes. These may include hydrochloric acid, sulfuric acid, biocides, dispersants and antiscalants.
13. Metal cleaning wastewaters include wastewater from boiler chemical cleaning, hypochlorinator chemical cleaning, evaporator chemical cleaning, air heater washes, boiler fireside washes, and selective catalytic reduction (SCR) washes. The volume of metal cleaning wastes produced on an annual basis is dependent on plant operations. Ordinarily, each boiler at the Encina Power Plant would undergo chemical cleaning once in a period of four years. The possibility exists, however, that all five could require cleaning in a single year. A chemical cleaning is performed with a dilute solution of hydrochloric acid and Thiourea. The boiler to be cleaned is drained of the water it contains and filled with fresh water, then fired to heat the water and metal up to temperature. When the required temperature is attained, a "fast drain" is done and the warm water is pumped back into the boiler with the chemicals mixed into the water during pumping. At this point the boiler is allowed to sit for six hours with the cleaning solution inside. The temperature is monitored so that if the system cools too quickly it can be drained sooner. After the cleaning solution has been given time to work on the deposits, another fast drain is done and the cleaning job is checked to ensure that the deposits have been removed. A rinse cycle follows and samples are taken during the draining. Usually a second and a third rinse are done. The third volume of water contains citric acid. The final volume in the cleaning operation contains phosphate and sodium hydroxide as neutralizing agents. When filled with this solution, the boiler is fired slowly to circulate the water. Lastly, the unit is drained, refilled, fired, and blown down.

A boiler chemical cleaning may also be performed using ethylenediaminetetraacetic acid (EDTA), a chelating cleaning agent, rather than acid.
14. The air heaters are usually washed once a year during overhaul operations when the facility is burning natural gas and twice a year when burning fuel oil. These washes are accomplished by spraying water against the surfaces to be cleaned. Wastewaters thus generated contain an assortment of dissolved and suspended solids with loadings and constituents dependent upon the fuel used.
15. Boiler fireside washes are performed to remove soot and accumulated combustion by-products from metal surfaces in

order to maintain efficient heat transfer. The frequency depends on the fuel being burned. These washes are accomplished by spraying high-pressure water against the surfaces to be cleaned. Wastewaters thus generated contain an assortment of dissolved and suspended solids with loadings and constituents dependent upon the fuel used.

16. Selective catalytic reduction washes are performed to remove soot and unburned combustion products which build up in the resin contained in the selective catalytic reduction unit. The resin, which is designed to remove nitrogen oxide from combustion gases, will be washed with water. It is anticipated that the resin will need to be washed about two times per year. Wastewaters thus generated contain an assortment of dissolved and suspended solids with loadings and constituents dependent upon the fuel used.
17. Metal cleaning wastewaters are collected in above ground tanks. Metal cleaning wastewaters undergo neutralization, flocculation, chemical precipitation and filtration at an on-site wastewater treatment plant. The treated wastewaters are collected in tanks for testing and verification of compliance with their total suspended solids, copper, iron and grease and oil effluent limitations prior to discharge.

Low volume wastes which are not discharged directly to the cooling water system (i.e., evaporator blowdown, condenser cleaning, sample drains, floor drains, demineralizer, dealkalizer and softeners) are collected and treated prior to discharge. In 1991, a new low volume waste treatment system started operation to provide oil/solids separation for these low volume wastes. Filtration of these wastewaters can be performed as an alternative treatment or as a backup treatment in the event the oil/solids separator becomes inoperable. Low volume wastes that discharge directly to the cooling water system are identified in Finding No. 7 above.

18. SDG&E reports that saltwater condenser leaks, though they occur intermittently and infrequently, can cause significant operating problems and increased frequency of boiler chemical cleanings for the power plant. Therefore, SDG&E is testing materials to temporarily plug leaks to allow the unit to operate until it can be removed from service for repair. Natural materials that are not expected to cause environmental or waste discharge problems are being investigated and, upon approval of the Regional Board Executive Officer (hereinafter Executive Officer), will be used.

19. The Comprehensive Water Quality Control Plan Report, San Diego Basin (9), (Basin Plan) was adopted by this Regional Board on March 17, 1975. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the State Board.
20. The Basin Plan identifies the following beneficial uses of the coastal waters of the Pacific Ocean to be protected:
 - a. Industrial service supply;
 - b. Navigation;
 - c. Water contact recreation;
 - d. Non-contact water recreation;
 - e. Ocean commercial and sport fishing;
 - f. Mariculture;
 - g. Wildlife habitat;
 - h. Preservation of Areas of Special Biological Significance;
 - i. Preservation of rare and endangered species;
 - j. Marine habitat;
 - k. Fish migration; and
 - l. Shellfish harvesting.
 - m. Fish spawning
21. The Basin Plan also contains narrative and numeric water quality objectives applicable to waters subject to tidal action. These prohibitions and objectives have been incorporated into this Order.
22. The State Water Resources Control Board (hereinafter State Board) adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on March 22, 1990. The Ocean Plan identifies the following beneficial uses of state ocean waters to be protected:
 - a. Industrial water supply;
 - b. Water contact recreation;
 - c. Non-contact water recreation;
 - d. Aesthetic enjoyment;
 - e. Navigation;
 - f. Ocean commercial and sport fishing;
 - g. Mariculture;
 - h. Preservation and enhancement of Areas of Special Biological Significance;
 - i. Preservation of rare and endangered species;
 - j. Marine habitat;
 - k. Fish migration;
 - l. Fish spawning; and
 - m. Shellfish harvesting.

In order to protect these beneficial uses, the Ocean Plan establishes water quality objectives (i.e. bacteriological, physical, chemical, biological characteristics, and radioactivity), general requirements for management of waste discharges to the ocean, quality requirements for waste discharges (effluent quality requirements), discharge prohibitions, and general provisions.

23. The Ocean Plan contains the following general requirements for management of waste discharge to the ocean:

- a. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
- b. Waste effluents shall be discharged in a manner which provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment.
- c. Location of waste discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:
 - (1) Pathogenic organisms and viruses are not present in areas where shellfish are harvested for human consumption or in areas used for swimming or other body-contact sports.
 - (2) Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.
 - (3) Maximum protection is provided to the marine environment.
- d. Waste that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

The Regional Board has considered these general requirements in adopting this Order. The terms and conditions of this Order are consistent with these general requirements.

24. Receiving water limitation D.1 of this Order establishes bacterial objectives for areas where shellfish may be harvested for human consumption, as determined by the Regional Board. As of the date of adoption of this Order, this Regional Board has not designated any shellfish harvesting area. However, the Basin Plan identifies Agua Hedionda Lagoon and the Pacific Ocean as having shellfish harvesting beneficial uses.
25. On May 18, 1972, the State Water Resources Control Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). A revised Thermal Plan was adopted by the State Board on September 18, 1975. This Plan contains objectives for discharges of elevated temperature wastes (existing and new discharges) to coastal waters.
26. Under the terms and conditions of the Thermal Plan, thermal waste discharges from Units 1-4 are classified as existing discharges. The waste discharge from Unit 5 is classified as a new discharge.
27. Under effluent guidelines and standards for the steam electric power generating point source category (hereinafter power plant regulations) in effect in 1974, as contained in 40 CFR Part 423, the Encina Power Plant Units 1-4 were classified as existing units and Unit 5 was classified as a new unit.
28. Section 316(a) of the Clean Water Act (CWA) requires compliance with the State water quality standards for the discharge of thermal effluent. SDG&E conducted a thermal effects study in 1973 as required by the Thermal Plan. The discharger concluded from the study that the existing discharges from Units 1-3 caused no prior appreciable harm to the aquatic communities of the coastal waters of the Pacific Ocean. The discharger further predicated that the increased discharge from Unit 4 would not cause significant changes in the existing conditions or beneficial uses. Regional Water Board reviewed the thermal effects study and concurred with the discharger's conclusions.
29. On March 6, 1975, under the provisions of Section 316(a) of the CWA, SDG&E applied for an exception for Unit 5 from the following new source performance standards contained in the

Thermal Plan and the power plant regulations in effect in 1975.

(a) Thermal Plan Objective 3.B.(1)

Elevated temperature waste shall be discharged to the open ocean away from the shoreline to achieve dispersion through the vertical water column.

(b) Thermal Plan Objective 3.B.(4)

The discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

(c) Power plant regulations in effect in 1974, 40 CFR 423.15(L)

There shall be no discharge of heat from the main condensers except:

- (1) Heat may be discharged in blowdown from recirculated cooling water systems provided the temperature at which the blowdown is discharged does not exceed at any time the lowest temperature of recirculated cooling water prior to the addition of the make-up water.
- (2) Heat may be discharged in blowdown from cooling ponds provided the temperature at which the blowdown is discharged does not exceed at any time the lowest temperature of recirculated cooling water prior to the addition of the make-up water.

30. On July 16, 1976, the U.S. Court of Appeals for the Fourth Circuit remanded certain provisions [including the thermal limitation discussed in Finding 29(c) above] of the power plant regulations in effect in 1974 for further consideration. USEPA has not promulgated a new heat discharge limitation for power plants to date.

31. SDG&E initiated a study in 1975 for the purpose of making a demonstration under Section 316(a) of the CWA in support of its application for the exceptions to the Thermal Plan described in Finding No. 29. As a part of its application for such exceptions under the Thermal Plan, SDG&E proposed alternative thermal discharge limitations which would allow

discharges from Unit No. 5 to be made in the same "across the beach" channel used for the thermal discharges from Unit Nos. 1-4, and allow for an alternative to the surface temperature limitation. SDG&E's study was undertaken to demonstrate that SDG&E's proposed discharge alternatives would assure the protection and propagation of the beneficial uses of the receiving waters, including a balanced, indigenous population of shellfish, fish and wildlife.

32. SDG&E submitted the results of the Section 316(a) demonstration study in 1981. SDG&E concluded that the additional discharge from Encina Power Plant Unit 5, when added to the discharges from Units 1-4, had not resulted in "Appreciable Harm" to the balanced indigenous communities of the receiving waters, or in adverse affects on the beneficial uses of the coastal waters in the vicinity of the Encina Power Plant discharge.
33. SDG&E submitted a supplemental 316(a) Summary Report in 1990. This report provided additional data for the period from 1981 to 1990 and amended the original request based upon actual operating experience.
34. Based on a review of the findings of the 316(a) demonstration studies, this Regional Board and USEPA have concluded that additional information is needed to determine if the thermal discharge from Encina will allow the propagation of a Balanced Indigenous Community and will ensure the protection of beneficial uses of the water. Therefore, this Order requires SDG&E to conduct an additional study to supplement its demonstration of compliance with Section 316(a) of the CWA in accordance with Special Condition G.1.
35. CWA Section 316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. By letter dated October 30, 1977 the Regional Board requested SDG&E to initiate studies to demonstrate conformance with the requirements of Section 316(b) of the CWA.
36. In December, 1980 the discharger submitted a final report intended to comply with Section 316(b) of the CWA. SDG&E concluded that "the low and insignificant level of impact demonstrates that the existing Encina Power Plant intake system represents the best technology available for this specific site to minimize adverse environmental impacts" [316(b) Summary, p. 4-26].

37. Based on a review of the findings of the 316(b) demonstration studies, this Regional Board and USEPA have concluded that additional information is needed to determine if the location, design, construction and capacity of cooling water intake structures at the Encina Power Plant reflect the best technology available for minimizing adverse environmental impacts and protecting beneficial uses of the receiving water. Therefore, this Order requires SDG&E to conduct an additional study to supplement its demonstration of compliance with Section 316(b) of the CWA in accordance with Special Condition G.2.
38. The above Findings regarding compliance with Sections 316(a) and 316(b) of the CWA are based on review of the studies submitted to date. Upon further review, the Findings and/or Special Conditions of this Order may be modified accordingly.
39. The Ocean Plan establishes a procedure for determining effluent limitations which is based on the minimum initial dilution of a discharge by the receiving ocean waters. The State Board has issued a document entitled **Water Quality Control Plan, Table B Guidelines, Ocean Waters of California, 1978** (Table B Guidelines) to assist in implementing the Ocean Plan. The Table B Guidelines describe two numerical models for use in estimating the minimum initial dilution of a discharge. If the models described in the Table B Guidelines are not applicable, a discharger may propose another numerical model or use the results of a site-specific physical modeling study. State Board staff determined an initial dilution value of 15.5 for the SDG&E Encina Power Plant.
40. Effluent limitations, national standards of performance, and toxic and pretreatment effluent standards established pursuant to Sections 301, 302, 303(d), 304, 306, 307, 316, and 403 of the CWA, as amended (33 U.S.C. 1251 et seq.), are applicable to the discharge.
41. On November 19, 1982, the USEPA promulgated revised power plant regulations. The regulations establish effluent limitation guidelines, pretreatment standards and new source performance standards, and are contained in 40 CFR Parts 125 and 423.
42. The best practicable control technology currently available (BPT) and best available technology economically achievable (BAT) effluent limitations guidelines promulgated under the revised power plant regulations are applicable to discharges from the Encina Power Plant. This Order incorporates these effluent limitations guidelines.

43. In accordance with Chapter IV of the Ocean Plan, this Order establishes the following effluent limitations for the combined discharge from the SDG&E Encina Power Plant:

- a. Ocean Plan Table A limitations for which federal effluent limitations guidelines have not been established pursuant to CWA Sections 301, 302, 304, or 306; and,
- b. Ocean Plan Table B limitations on total chlorine residual, chronic toxicity, and instantaneous maximum limitations on Ocean Plan Table B toxic materials.

Also in accordance with Chapter IV of the Ocean Plan, this Order establishes effluent mass emission rate limitations for all in-plant waste streams taken together which discharge into the cooling water flow on all Ocean Plan Table B constituents except total chlorine residual and chronic toxicity.

44. Because of the configuration of the cooling water intake and discharge structures of the Encina Power Plant, waste constituents and pollutants may be present in the intake water as a result of spills or other discharges beyond the control of the discharger at concentrations that could cause the cooling water discharge from the Encina Power Plant to violate the effluent limits contained in this Order or to exceed the concentrations set forth in Table A or Table B of the Ocean Plan. Prior to initiating enforcement action for such violations under this Order, the Regional Board will take into consideration the source of the waste constituents or pollutants causing the violation(s) and any affirmative actions of the discharger to mitigate the impact of pollutants upon waters of the state and of the United States and to assist in abatement of any pollution or nuisance associated with discharges that violate the requirements of this Order under such circumstances (e.g., development and implementation of contingency plans, actions to eliminate or minimize impacts, avoidance of actions that would exacerbate the problem, etc.).

45. On November 19, 1991, the State Board adopted the General Industrial Storm Water Permit, Order No. 91-13-DWQ (as amended by Water Quality Order No. 92-12-DWQ), NPDES No. CAS000001. On April 7, 1992, SDG&E submitted a Notice of Intent to the State Board for obtaining coverage of the Encina Power Plant under Order No. 91-13-DWQ. The State Board confirmed coverage of the SDG&E Encina Power Plant under Order No. 91-13-DWQ and assigned WDID# 9 37S005563 to the facility.

46. Pursuant to 40 CFR 131.12 and State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (collectively "antidegradation policies"), the Regional Water Board has determined that an antidegradation analysis is not necessary since this Order does not authorize an increase in the flowrate or mass emission rate of the discharge to the Pacific Ocean. The Regional Board is not currently aware of any information that would indicate that the Encina Power Plant discharge to the ocean is not in compliance with antidegradation policies.
47. This Order shall serve as an NPDES permit for the combined discharge of elevated temperature once-through cooling water and other waste discharges from the SDG&E Encina Power Plant to the Pacific Ocean pursuant to Section 402 of the CWA, and amendments thereto.
48. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:
- a. Beneficial uses to be protected and the water quality objectives reasonably required for that purpose;
 - b. Other waste discharges;
 - c. The need to prevent nuisance;
 - d. Past, present, and probable future beneficial uses of ocean waters under consideration;
 - e. Environmental characteristics of ocean waters under consideration, including the quality of water available thereto;
 - f. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
 - g. Economic considerations;
 - h. The need for developing housing within the region; and,
 - i. The need to develop and use recycled water.
49. The issuance of waste discharge requirements for this discharge is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (Public Resources Code, Division 13, Chapter 3,

Section 21000 et seq.) in accordance with the California Water Code, Section 13389.

50. The Regional Board has notified SDG&E and all known interested parties of its intent to renew NPDES permit requirements for the existing discharge of waste.
51. The Regional Board has, at a public meeting, heard and considered all comments pertaining to the discharge of once-through cooling water and other wastes from the SDG&E Encina Power Plant to the ocean.

IT IS HEREBY ORDERED, that San Diego Gas and Electric Company (hereinafter discharger), in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act and the regulations adopted thereunder, shall comply with the following requirements for the discharge from the Encina Power Plant to the Pacific Ocean:

A. PROHIBITIONS

1. Discharges of wastes in a manner or to a location which have not been specifically authorized by the Regional Board in this Order are prohibited.
2. The discharge of oil or any residuary product of petroleum to the waters of the State, except in accord with waste discharge requirements or other provisions of Division 7, California Water Code is prohibited.
3. The discharge of any radiological, chemical or biological warfare agent or high-level radioactive waste into the ocean is prohibited.
4. Waste^{1/} shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.
5. Pipeline discharge of sludge to the ocean^{1/} is prohibited by federal law; the discharge of municipal and industrial waste^{1/} sludge directly to the ocean^{1/}, or into a waste^{1/} stream that discharges to the ocean^{1/} is prohibited. The discharge of sludge digester supernatant directly to the ocean^{1/}, or to a waste^{1/} stream that discharges to the ocean^{1/} without further treatment, is prohibited.

6. The bypassing of untreated wastes^{1/} containing concentrations of pollutants in excess of those in the Ocean Plan Table A or Table B or the effluent limitations of this Order to the ocean^{1/} is prohibited, except as provided for in Provision E.12 of this Order.
7. The discharge to the Pacific Ocean from the Encina Power Plant in excess of 862.4996 MGD is prohibited unless the discharger obtains revised waste discharge requirements authorizing an increased flowrate.
8. The discharge of polychlorinated biphenyl compounds, such as those commonly used for transformer fluid, is prohibited.
9. Total residual oxidants may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the Regional Board that the discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination/bromination is permitted.
10. Except as permitted herein, the dumping or deposition from shore or from vessels of oil, garbage, trash or other solid municipal, industrial, or agricultural waste directly into waters subject to tidal action or adjacent to waters subject to tidal action in any manner which may permit it to be washed into waters subject to tidal action is prohibited.
11. Except as permitted herein, discharge of industrial wastewaters exclusive of cooling water, clear brine or other waters which are essentially chemically unchanged, into waters subject to tidal action is prohibited.
12. Except as permitted herein, the dumping or deposition of chemical wastes, chemical agents or explosives into waters subject to tidal action is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The following effluent limitations apply to the combined discharge of once-through (non-contact) cooling water, low volume wastes, metal cleaning wastes and stormwater runoff from the Encina Power Plant to the ocean:
 - a. Effluent Limitations for Major Wastewater Constituents and Properties

Constituent/ Property	Units	Monthly Average ^{10/}	Weekly Average ^{11/}	Maximum at any time
Settleable Solids	ml/l	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	within the limits of 6.0 to 9.0 at all times		
Acute toxicity ^{12/}	TUa	1.5	2.0	2.5

Note: ml/l = milliliters per liter
 NTU = Nephelometric Turbidity Units

b. Effluent Limitations for Toxic Materials^{2/}

Parameter	Units ^{3/4/}	6-Month Median ^{5/}	Daily Maximum ^{6/}	Instantaneous Maximum ^{7/}
Arsenic	ug/l lb/day	--	--	1,300 9,400
Cadmium	ug/l lb/day	--	--	170 1,200
Chromium (Hexavalent) ^{8/}	ug/l lb/day	--	--	330 2,400
Copper	ug/l lb/day	--	--	460 3,300
Lead	ug/l lb/day	--	--	330 2,400
Mercury	ug/l lb/day	--	--	6.6 47
Nickel	ug/l lb/day	--	--	830 6,000
Selenium	ug/l lb/day	--	--	2,500 18,000
Silver	ug/l lb/day	--	--	110 800

Parameter	Units ^{3/4/}	6-Month Median ^{5/}	Daily Maximum ^{6/}	Instantaneous Maximum ^{7/}
Zinc	ug/l lb/day	--	--	3,200 23,000
Cyanide	ug/l lb/day	--	--	170 1,200
Total Chlorine Residual ^{9/}	ug/l lb/day	30 200	100 700	200 1,400
Ammonia (as N)	ug/l lb/day	--	--	99,000 710,000
Chronic Toxicity ^{12/}	TUc	--	16.5	--
Phenolic Compounds (non-chlorinated)	ug/l lb/day	--	--	5,000 36,000
Chlorinated Phenolics	ug/l lb/day	--	--	170 1,200
Endosulfan	ng/l lb/day	--	--	450 3.2
Endrin	ng/l lb/day	--	--	100 0.7
HCH ^{1/}	ng/l lb/day	--	--	200 1.4
Radioactivity	Not to exceed limits specified in Title 17, Division 5, Chapter 4, Group 3, Article 3, Section 32069 of the California Code of Regulations			

Note: ug/l = micrograms per liter
lb/day = pounds per day
ng/l = nanograms per liter

2. Waste discharged^{1/} from the Encina Power Plant to the ocean^{1/} must be essentially free of:
 - a. Material that is floatable or will become floatable upon discharge.

- b. Settleable material or substances that may form sediments which will degrade^{1/} benthic communities or other aquatic life.
 - c. Substances which will accumulate to toxic levels in marine waters, sediments or biota.
 - d. Substances that significantly^{1/} decrease the natural^{1/} light to benthic communities and other marine life.
 - e. Materials that result in aesthetically undesirable discoloration of the ocean^{1/} surface.
- 3. All waste treatment, containment and disposal facilities shall be protected against 100-year peak stream flows as defined by the San Diego County flood control agency.
 - 4. All waste treatment, containment and disposal facilities shall be protected against erosion, overland runoff and other impacts resulting from a 100-year frequency 24-hour storm.
 - 5. Collected screenings, sludges, and other solids removed from liquid wastes, shall be disposed of in a manner approved by the Executive Officer.
 - 6. The Encina Power Plant discharge of elevated temperature wastes to the ocean shall comply with limitations necessary to assure protection of beneficial uses and designated areas of special biological significance.
 - 7. At all times except during heat treatment operations, as described in Finding Nos. 10 and 11, the temperature of the combined discharge from the Encina Power Plant to the ocean shall not average more than 20°F (11.1°C) above that of the incoming lagoon water during any 24-hour period. The combined discharge shall not at any time exceed 25°F (13.9°C) above that of the incoming Lagoon water.
 - 8. During heat treatment, heat added to the cooling water shall not cause the temperature of the combined discharge to the ocean to exceed 120°F (48.9°C). This

maximum temperature of 120°F shall not be maintained for more than two hours.

9. In the event the discharger's request for a CWA Section 316(a) exception to the Thermal Plan's requirements is not granted by the Regional Board, then the Encina Power Plant Unit 5 discharge shall comply with the following new source performance standards contained in the Thermal Plan:

- (a) Elevated temperature waste shall be discharged to the open ocean away from the shoreline to achieve dispersion through the vertical water column.
- (b) The discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

10. The combined discharge of all Encina Power Plant low volume wastes to the once-through cooling water flow containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flow rate of 3.8025 MGD)^{13/}

Parameter	Units ^{3/}	Monthly Average ^{10/}	Daily Maximum ^{6/}	Instantaneous Maximum ^{7/}
Total Suspended Solids	mg/l lb/day	30.0 951	100.0 3,170	100.0 3,170
Grease and Oil	mg/l lb/day	15.0 476	20.0 634	20.0 634

11. The combined discharge of all Encina Power Plant metal cleaning wastes to the once-through cooling water flow containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flow rate of 0.7971 MGD)^{13/}

Parameter	Units ^{3/}	Monthly Average ^{10/}	Daily Maximum ^{6/}	Instantaneous Maximum ^{7/}
Total Suspended Solids	mg/l lb/day	30.0 199	100.0 665	100.0 665
Grease and Oil	mg/l lb/day	15.0 100	20.0 133	20.0 133
Copper, total	mg/l lb/day	1.0 6.6	1.0 6.6	1.0 6.6
Iron, total	mg/l lb/day	1.0 6.6	1.0 6.6	1.0 6.6

12. The combined discharge from all Encina Power Plant in-plant waste sources, taken together, to the once-through cooling water flow containing pollutants in excess of the following effluent limitations is prohibited:^{2/} (based on a maximum combined discharge flowrate of 862.4996 MGD)

Parameter	Units ^{3/14/}	6-Month Median ^{5/}	Daily Maximum ^{6/}
Arsenic	lb/day	600	3,500
Cadmium	lb/day	100	500
Chromium (Hexavalent) ^{8/}	lb/day	200	900
Copper	lb/day	100	1,200
Lead	lb/day	200	900
Mercury	lb/day	5	19
Nickel	lb/day	600	2,400
Selenium	lb/day	1,800	7,100
Silver	lb/day	70	310
Zinc	lb/day	1,500	8,600
Cyanide	lb/day	100	500
Ammonia (as N)	lb/day	71,000	280,000

Parameter	Units ^{3/14/}	6-Month Median ^{5/}	Daily Maximum ^{6/}
Phenolic Compounds (non-chlorinated)	lb/day	3,600	14,000
Chlorinated Phenolics	lb/day	100	500
Endosulfan	lb/day	1	2.1
Endrin	lb/day	0.2	0.5
HCH ^{1/}	lb/day	0.5	0.9
Radioactivity	Not to exceed limits specified in Title 17, Division 5, Chapter 4, Group 3, Article 3, Section 32069 of the California Code of Regulations		

Parameter	Units ^{3/14/}	30-day Average
acrolein	lb/day	26,000
antimony	lb/day	140,000
bis(2-chloroethoxy) methane	lb/day	520
bis(2-chloroisopropyl) ether	lb/day	140,000
chlorobenzene	lb/day	68,000
chromium (III)	lb/day	23,000,000
di-n-butyl phthalate	lb/day	420,000
dichlorobenzenes ^{1/}	lb/day	610,000
1,1-dichloroethylene	lb/day	840,000
diethyl phthalate	lb/day	3,900,000
dimethyl phthalate	lb/day	97,000,000
4,6-dinitro-2-methylphenol	lb/day	26,000
2,4-dinitrophenol	lb/day	470
ethylbenzene	lb/day	490,000
fluoranthene	lb/day	1,800

Parameter	Units ^{3/14/}	30-day Average
hexachlorocyclopentadiene	lb/day	6,900
isophorone	lb/day	18,000,000
nitrobenzene	lb/day	580
thallium	lb/day	1,700
toluene	lb/day	10,000,000
1,1,2,2-tetrachloroethane	lb/day	140,000
tributyltin	lb/day	0.17
1,1,1-trichloroethane	lb/day	64,000,000
1,1,2-trichloroethane	lb/day	5,100,000
acrylonitrile	lb/day	12
aldrin	lb/day	0.0026
benzene	lb/day	700
benzidine	lb/day	0.0082
beryllium	lb/day	3.9
bis(2-chloroethyl) ether	lb/day	5.3
bis(2-ethylhexyl) phthalate	lb/day	420
carbon tetrachloride	lb/day	110
chlordan ^{1/}	lb/day	0.0027
chloroform	lb/day	15,000
DDT ^{1/}	lb/day	0.020
1,4-dichlorobenzene	lb/day	2,100
3,3-dichlorobenzidine	lb/day	0.96
1,2-dichloroethane	lb/day	15,000
dichloromethane	lb/day	53,000
1,3-dichloropropene	lb/day	1,100
dieldrin	lb/day	0.0047
2,4-dinitrotoluene	lb/day	310
1,2-diphenylhydrazine	lb/day	19

Parameter	Units ^{3/14/}	30-day Average
halomethanes ^{1/}	lb/day	15,000
heptachlor ^{1/}	lb/day	0.085
hexachlorobenzene	lb/day	0.025
hexachlorobutadiene	lb/day	1,700
hexachloroethane	lb/day	300
N-nitrosodimethylamine	lb/day	870
N-nitrosodiphenylamine	lb/day	300
PAHs ^{1/}	lb/day	1.0
PCBs ^{1/}	lb/day	0.0023
TCDD equivalents ^{1/}	lb/day	4.6E-07
tetrachloroethylene	lb/day	12,000
toxaphene	lb/day	0.025
trichloroethylene	lb/day	3,200
2,4,6-trichlorophenol	lb/day	34
vinyl chloride	lb/day	4,300

Note: lb/day = pounds per day

13. The discharge of substances for which effluent limits are not established by this Order shall be prevented or, if the discharge cannot be prevented, minimized.

C. COOLING WATER INTAKE STRUCTURE SYSTEM SPECIFICATIONS

1. The discharger shall maintain velocities at design levels in front of the intake structure and routinely clean the bar racks at Encina Power Plant. The discharger shall rotate and clean intake screen assemblies as needed when the unit is in operation, for the purpose of maintaining intake water velocities as close as practical to design levels.
2. The discharger shall minimize once-through cooling water flow where possible when units are at reduced load or out of service, except as required to ensure equipment and personnel safety.

3. The discharger shall avoid sudden increases in once-through cooling water flow whenever possible.

D. RECEIVING WATER LIMITATIONS

1. The Encina Power Plant discharge of waste^{1/} to the ocean shall not by itself or jointly with any discharge(s) cause violation of the following Ocean Plan ocean water quality objectives. Compliance with these objectives shall be determined from samples collected at stations representative of the area within the waste field where initial^{1/} dilution is completed.

a. Bacterial Characteristics

(1) Water-Contact Standards

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board, but including all kelp^{1/} beds, the following bacterial objectives shall be maintained throughout the water column:

- (a) Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).
- (b) The fecal coliform density based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

The "Initial^{1/} Dilution Zone" of wastewater outfalls shall be excluded from designation as "kelp^{1/} beds" for purposes of bacterial standards. Adventitious assemblages of kelp plants on waste discharge structures (e.g. outfall pipes and diffusers) do not constitute kelp^{1/} beds for purposes of bacterial standards.

(2) Shellfish^{1/} Harvesting Standards

At all areas where shellfish^{1/} may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

b. Bacterial Assessment and Remedial Action Requirements

The requirements listed below shall be used to 1) determine the occurrence and extent of any impairment of a beneficial use due to bacterial contamination; 2) generate information which can be used in the development of an enterococcus standard; and 3) provide the basis for remedial actions necessary to minimize or eliminate any impairment of a beneficial use.

Measurement of enterococcus density shall be conducted at all stations where measurement of total and fecal coliforms are required. In addition to the requirements of Receiving Water Limitation D.1.a.(1) of this Order, if a shore station consistently exceeds a coliform objective or exceeds a geometric mean enterococcus density of 24 organisms per 100 ml for a 30-day period or 12 organisms per 100 ml for a six-month period, the Regional Board may require the discharger to conduct or participate in a survey to determine the source of the contamination. The geometric mean shall be a moving average based on no less

than five samples per month, spaced evenly over the time interval. When a sanitary survey identifies a controllable source of indicator organisms associated with a discharge of sewage, the Regional Board may require the discharger and any other responsible parties identified by the Regional Board to take action to control the source.

c. Physical Characteristics

- (1) Floating particulates and grease and oil shall not be visible.
- (2) The discharge of waste^{1/} shall not cause aesthetically undesirable discoloration of the ocean^{1/} surface.
- (3) Natural^{1/} light shall not be significantly^{1/} reduced at any point outside the initial^{1/} dilution zone as the result of the discharge of waste^{1/}.
- (4) The rate of deposition of inert solids and the characteristics of inert solids in ocean^{1/} sediments shall not be changed such that benthic communities are degraded^{1/}.

d. Chemical Characteristics

- (1) The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste^{1/} materials.
- (2) The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- (3) The dissolved sulfide concentration of waters in and near sediments shall not be significantly^{1/} increased above that present under natural conditions.

- (4) The concentration of substances set forth in Table B of the Ocean Plan in marine sediments shall not be increased to levels which would degrade^{1/} indigenous biota.
- (5) The concentration of organic materials in marine sediments shall not be increased to levels which would degrade^{1/} marine life.
- (6) Nutrient materials shall not cause objectionable aquatic growth or degrade^{1/} indigenous biota.

e. Biological Characteristics

- (1) Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded^{1/}.
- (2) The natural taste, odor, and color of fish, shellfish^{1/}, or other marine resources used for human consumption shall not be altered.
- (3) The concentration of organic materials in fish, shellfish^{1/} or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

f. Radioactivity

Discharge of radioactive waste^{1/} shall not degrade^{1/} marine life.

- 2. The Encina Power Plant discharge to the ocean shall not by itself or jointly with any other discharge(s) cause the following Ocean Plan water quality objectives to be exceeded in ocean waters upon completion of initial^{1/} dilution, except that limitations indicated for radioactivity shall apply directly to the undiluted waste^{1/} effluent:

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Arsenic	ug/l	8	32	80
Cadmium	ug/l	1	4	10
Chromium (Hexavalent) ^{8/}	ug/l	2	8	20
Copper	ug/l	3	12	30
Lead	ug/l	2	8	20
Mercury	ug/l	0.04	0.16	0.4
Nickel	ug/l	5	20	50
Selenium	ug/l	15	60	150
Silver	ug/l	0.7	2.8	7
Zinc	ug/l	20	80	200
Cyanide	ug/l	1	4	10
Total Chlorine Residual ^{9/}	ug/l	2	8	60
Ammonia (as N)	ug/l	600	2400	6000
Chronic Toxicity	TUc	--	1	--
Phenolic Compounds (non- chlorinated)	ug/l	30	120	300
Chlorinated Phenolics	ug/l	1	4	10
Endosulfan	ng/l	9	18	27
Endrin	ng/l	2	4	6
HCH ^{1/}	ng/l	4	8	12
Radioactivity	Not to exceed limits specified in Title 17, Division 5, Chapter 4, Group 3, Article 3, Section 32069 of the California Code of Regulations.			

Parameter	Units	30-day Average
acrolein	ug/l	220
antimony	mg/l	1.2
bis(2-chloroethoxy) methane	ug/l	4.4
bis(2-chloroisopropyl) ether	mg/l	1.2
chlorobenzene	ug/l	570
chromium (III)	mg/l	190
di-n-butyl phthalate	mg/l	3.5
dichlorobenzenes ^{1/}	mg/l	5.1
1,1-dichloroethylene	mg/l	7.1
diethyl phthalate	mg/l	33
dimethyl phthalate	mg/l	820
4,6-dinitro-2-methylphenol	ug/l	220
2,4-dinitrophenol	ug/l	4.0
ethylbenzene	mg/l	4.1
fluoranthene	ug/l	15
hexachlorocyclopentadiene	ug/l	58
isophorone	mg/l	150
nitrobenzene	ug/l	4.9
thallium	ug/l	14
toluene	mg/l	85
1,1,2,2-tetrachloroethane	mg/l	1.2
tributyltin	ng/l	1.4
1,1,1-trichloroethane	mg/l	540
1,1,2-trichloroethane	mg/l	43
acrylonitrile	ug/l	0.10
aldrin	ng/l	0.022
benzene	ug/l	5.9
benzidine	ng/l	0.069

Parameter	Units	30-day Average
beryllium	ng/l	33
bis(2-chloroethyl) ether	ug/l	0.045
bis(2-ethylhexyl) phthalate	ug/l	3.5
carbon tetrachloride	ug/l	0.90
chlordane ^{1/}	ng/l	0.023
chloroform	mg/l	0.13
DDT ^{1/}	ng/l	0.17
1,4-dichlorobenzene	ug/l	18
3,3-dichlorobenzidine	ng/l	8.1
1,2-dichloroethane	mg/l	0.13
dichloromethane	mg/l	0.45
1,3-dichloropropene	ug/l	8.9
dieldrin	ng/l	0.040
2,4-dinitrotoluene	ug/l	2.6
1,2-diphenylhydrazine	ug/l	0.16
halomethanes ^{1/}	mg/l	0.13
heptachlor ^{1/}	ng/l	0.72
hexachlorobenzene	ng/l	0.21
hexachlorobutadiene	ug/l	14
hexachloroethane	ug/l	2.5
N-nitrosodimethylamine	ug/l	7.3
N-nitrosodiphenylamine	ug/l	2.5
PAHs ^{1/}	ng/l	8.8
PCBs ^{1/}	ng/l	0.019
TCDD equivalents ^{1/}	pg/l	0.0039
tetrachloroethylene	ug/l	99
toxaphene	ng/l	0.21
trichloroethylene	ug/l	27

Parameter	Units	30-day Average
2,4,6-trichlorophenol	ug/l	0.29
vinyl chloride	ug/l	36

Note: mg/l = milligrams per liter
ug/l = micrograms per liter
ng/l = nanograms per liter
pg/l = picograms per liter
lb/day = pounds per day

3. The Encina Power Plant discharge of waste to the ocean shall not by itself or jointly with any discharge(s) cause violation of the following Basin Plan ocean water quality objectives:
 - a. The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/l nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/l at any time.
 - b. The pH value shall not be depressed below 7.0 nor raised above 8.6.

E. PROVISIONS

1. Neither the treatment nor the discharge of waste shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
2. The discharger must comply with all conditions of this Order. Any permit noncompliance constitutes a violation of the CWA and the California Water Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a report of waste discharge submitted in application for permit modification or reissuance.
3. The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

4. This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
 - a. Violation of any terms or conditions of this Order;
 - b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or
 - c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the discharger for modification, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.

5. If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the Executive Officer may institute proceedings under these regulations to modify or revoke and reissue the Order to conform to the toxic effluent standard or prohibition.
6. The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use and disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this Order has not yet been modified to incorporate the requirement.
7. This Order does not convey any property rights of any sort or any exclusive privilege. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liabilities under federal,

state, or local laws, nor create a vested right for the discharger to continue the waste discharge.

8. The discharger shall allow the Regional Board, or any authorized Regional Board representative, or any authorized representative of the USEPA (including an authorized contractor acting as a representative of the Regional Board or USEPA), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the CWA or California Water Code, any substances or parameters at any location.
9. The discharger shall take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this Order which has a reasonable likelihood of adversely affecting human health or the environment.
10. The discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the discharger only when the operation is

necessary to achieve compliance with the conditions of this Order.

11. It shall not be a defense for the discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. Upon reduction, loss, or failure of a treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of a treatment facility fails, is reduced, or is lost.

12. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not Exceeding Limitations

The discharger may allow any bypass to occur which does not cause effluent limitations of this Order or the concentrations of pollutants set forth in Ocean Plan Table A or Table B to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c. and d. of this provision.

c. Notice

- (1) Anticipated bypass. If the discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.

- (2) Unanticipated bypass. The discharger shall submit notice of an unanticipated bypass as required in Reporting Requirement F.7.

d. Prohibition of Bypass

- (1) Bypass is prohibited, and the Regional Board may take enforcement action against the discharger for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (c) The discharger submitted notices as required under paragraph c. of this section.
- (2) The Executive Officer may approve an anticipated bypass, after considering its adverse effects, if the Executive Officer determines that it will meet the three conditions listed above in paragraph d.(1) of this section.

13. Upset

a. Definition

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of

preventive maintenance, or careless or improper operation.

b. Effect of an Upset

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph c. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions Necessary for a Demonstration of Upset

A discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and that the discharger can identify the cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated;
- (3) The discharger submitted notice of the upset as required in Reporting Requirement F.7. of this Order; and
- (4) The discharger complied with any remedial measures required under Provision E.9. of this Order.

d. Burden of Proof

In any enforcement proceeding the discharger seeking to establish the occurrence of an upset has the burden of proof.

14. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.
15. The discharger shall comply with any interim effluent limitations as established by addendum, enforcement

action or revised waste discharge requirements which have been or may be adopted by this Regional Board.

16. The discharger shall have and implement a Best Management Practices (BMP) program in accordance with 40 CFR 125.100-125.104. The BMP program shall prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants referred to in Finding Nos. 12 and 18, from ancillary activities to waters of the United States. The discharger shall maintain the BMP program in an up-to-date condition and shall amend the BMP program in accordance with 40 CFR 125.100-125.104 whenever there is a change in facility design, construction, operation, or maintenance which materially affects the potential for discharge from the Encina Power Plant of significant amounts of hazardous or toxic pollutants into waters of the United States. The BMP program, and any amendments thereto, shall be subject to the approval of the Executive Officer and shall be modified as directed by the Executive Officer. The discharger shall submit the BMP program and any amendments thereto to the Executive Officer upon request of the Executive Officer.
17. A copy of this Order and the BMP plan shall be located in the central offices at the Encina Power Plant, and shall be available to operating personnel at all times.
18. In accordance with CWA Sections 316(a) and 316(b), the discharger shall comply with any applicable standards and guidelines which may be established by USEPA pursuant to these sections. The discharger shall conduct such studies deemed necessary by the Executive Officer to demonstrate compliance with CWA Sections 316(a) and 316(b).
19. No later than 90 days after adoption of this Order, the discharger shall develop a Toxicity Reduction Evaluation (TRE) workplan in accordance with USEPA's Toxicity Reduction Evaluation Procedures: Phases 1, 2, and 3, (USEPA document Nos. USEPA 600/3-88/034, 600/3-88/035 and 600/3-88/036, respectively), and TRE Protocol for Industrial Plants (USEPA 600/2-88/070). The TRE workplan shall be subject to the approval of the Executive Officer and shall be modified as directed by the Executive Officer. The discharger shall submit the TRE workplan to the Executive Officer upon request of the Executive Officer.

If toxicity testing results show a violation of any acute or chronic toxicity limitation identified in Discharge Specification B.1 of this Order, the discharger shall:

- a. Take all reasonable measures necessary to immediately minimize toxicity; and
- b. Increase the frequency of the toxicity test(s) which showed a violation to at least two times per month until the results of at least two consecutive toxicity tests do not show violations.

If the Executive Officer determines that toxicity testing shows consistent violation of any acute or chronic toxicity limitation identified in Discharge Specification B.1. of this Order, the discharger shall conduct a TRE which includes all reasonable steps to identify the source of toxicity. Once the source of toxicity is identified, the discharger shall take all reasonable steps to reduce the toxicity to meet the toxicity limitations identified in Discharge Specification B.1 of this Order.

Within fourteen days of completion of the TRE, the discharger shall submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with all the toxicity limitations of this Order and prevent recurrence of violations of those limitations, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the direction of the Executive Officer.

F. REPORTING REQUIREMENTS

1. The discharger shall file a new Report of Waste Discharge not less than 180 days prior to any material change or proposed change in the character, location, or volume of the discharge including, but not limited to, the following:
 - a. Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.

- b. Significant change in disposal method, e.g., change from a land disposal to a direct discharge to water, or change in the method of treatment which would significantly alter the characteristics of the waste.
 - c. Significant change in disposal area, e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area, potentially causing different water quality or nuisance problem.
 - d. Increase in flow beyond that specified in this Order.
- 2. The discharger shall give notice to the Executive Officer as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
 - a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b);
 - b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order, nor to notification requirements under Reporting Requirement F.9; or
 - c. The alteration or addition results in a significant change in the discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of conditions in this Order that are different from or absent in the existing Order, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- 3. The discharger shall give advance notice to the Executive Officer of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this Order.

4. The discharger shall notify the Executive Officer and the Long Beach and San Diego offices of the California Department of Fish and Game, where practicable, at least 48 hours in advance of any heat treatment at the Encina Power Plant.
5. This Order is not transferable to any person except after notice to the Executive Officer. The Executive Officer may require modification or revocation and reissuance of this Order to change the name of the discharger and incorporate such other requirements as may be necessary under the CWA or the California Water Code in accordance with the following:

a. Transfers by Modification

Except as provided in paragraph b. of this reporting requirement, this Order may be transferred by the discharger to a new owner or operator only if this Order has been modified or revoked and reissued, or a minor modification made to identify the new discharger and incorporate such other requirements as may be necessary under the CWA or California Water Code.

b. Automatic Transfers

As an alternative to transfers under paragraph a. of this reporting requirement, any NPDES permit may be automatically transferred to a new discharger if:

- (1) The current discharger notifies the Executive Officer at least 30 days in advance of the proposed transfer date in paragraph b.(2) of this reporting requirement;
- (2) The notice includes a written agreement between the existing and new dischargers containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
- (3) The Executive Officer does not notify the existing discharger and the proposed new discharger of his or her intent to modify or revoke and reissue the Order. A modification under this subparagraph may also be a minor modification under 40 CFR Part 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph b.(2) of this reporting requirement.

6. The discharger shall comply with Monitoring and Reporting Program No. 94-59. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 94-59.
7. The discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally to the Executive Officer within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following shall be included as information which must be reported within 24 hours under this reporting requirement:
 - a. Any unanticipated bypass which exceeds any effluent limitation in this Order.
 - b. Any discharge of treated or untreated wastewater resulting from pipeline breaks, obstruction, surcharge or any other circumstance.
 - c. Any upset which exceeds any effluent limitation in this Order.
 - d. Violation of a daily maximum effluent limitation as specified in this Order.
 - e. Any spills of polychlorinated biphenyl compounds (PCB). The spill residue shall be drummed and disposed of in a manner which is compliance with all federal, state and local laws and regulations. Written notification shall include pertinent information explaining reasons for the spill and shall indicate what steps were taken to prevent the problem from recurring.
 - f. Any violation of the effluent limitations for acute or chronic toxicity as specified in this Order.

- g. Any violation of the prohibitions of this Order.
 - h. Any receiving water sample in exceedance of bacterial water quality objectives specified in Receiving Water Limitation D.1.a of this Order.
8. Whenever a receiving water sample is found to contain levels of bacteria which exceed bacterial water quality objectives specified in Receiving Water Limitation D.1.a of this Order, the discharger shall immediately notify the County of San Diego Department of Environmental Health Services and post signage prohibiting body contact with the water in all areas affected by the contamination.
9. The discharger shall notify the Executive Officer as soon as it knows or has reason to believe:
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic or non-toxic pollutant which is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 ug/l);
 - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge submitted in application for this Order; or
 - (4) The level established by the Regional Board in accordance with 40 CFR 122.44(f).
 - b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic or non-toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

- (1) Five hundred micrograms per liter (500 ug/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge submitted in application for this Order; or,
 - (4) The level established by the Regional Board in accordance with 40 CFR 122.44(f).
10. The discharger shall furnish to the Executive Officer, State Board Executive Director, or USEPA, within a reasonable time, any information which the Executive Officer, State Board Executive Director, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order, or to determine compliance with this Order. The discharger shall also furnish to the Executive Officer, State Board Executive Director, or USEPA, upon request, copies of records required to be kept by this Order.
11. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each schedule date.
12. The discharger shall report all instances of noncompliance not reported under Reporting Requirements F.6, F.7, and F.11 of this Order, at the time monitoring reports are submitted. The reports shall contain the information listed in Reporting Requirement F.7 of this Order.
13. Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge, or submitted incorrect information in a Report of Waste Discharge, or in any report to the Regional Board, it shall promptly submit such facts or information.
14. This Order expires on November 10, 1999. If the discharger wishes to continue any activity regulated by this Order after the expiration date of this Order, the discharger must apply for and obtain new waste discharge requirements. The discharger must file a Report of Waste Discharge in accordance with Title 23,

California Code of Regulations not later than 180 days in advance of the expiration date of this Order as application for issuance of new waste discharge requirements.

15. All applications, reports, or information submitted to the Executive Officer shall be signed and certified.

a. All Reports of Waste Discharge shall be signed as follows:

- (1) **For a corporation:** by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (b) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- (2) **For a partnership or sole proprietorship:** by a general partner or the proprietor, respectively; or
- (3) **For a municipality, State, Federal or other public agency:** by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (a) the chief executive officer of the agency, or (b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).

b. All reports required by this Order, and other information requested by the Executive Officer shall be signed by a person described in paragraph a. of this reporting requirement, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- (1) The authorization is made in writing by a person described in paragraph a. of this reporting requirement;
- (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and,
- (3) The written authorization is submitted to the Executive Officer.

c. If an authorization under paragraph b. of this reporting requirement is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph b. of this reporting requirement must be submitted to the Executive Officer prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Any person signing a document under paragraph a. or b. of this reporting requirement shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false

information, including the possibility of fine and imprisonment for knowing violations."

16. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this Order shall be available for public inspection at the offices of the California Regional Water Quality Control Board, San Diego Region. As required by the CWA, Reports of Waste Discharge, this Order, and effluent data shall not be considered confidential.
17. The discharger shall submit reports and provide notifications as required by this Order in accordance with the following:
 - a. Reports required to be submitted to the Executive Officer shall be sent to:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd, Suite B
San Diego, California 92124-1331

Notifications required to be provided to the Executive Officer shall be made to:

Phone - (619) 467-2952 or
Fax - (619) 571-6972
 - b. Reports required to be submitted to the USEPA shall be sent to:

U.S. Environmental Protection Agency
Region IX
Permits Issuance Section (W-5-1)
75 Hawthorne Street
San Francisco, California 94105
 - c. Notifications required to be provided to the California Department of Fish and Game shall be made to:

<u>Long Beach Office</u>	<u>San Diego Office</u>
Phone - (310) 590-5132	Phone - (619) 525-4187
Fax - (310) 590-5834	Fax - (619) 525-4056
 - d. Notifications required to be provided to the County of San Diego Department of Health Services shall be made to:

Phone - (619) 338-2222 or
Fax - (619) 338-2174

G. SPECIAL CONDITIONS

1. Cooling Water Discharge Demonstration Study

- a. The discharger shall submit to USEPA and the Executive Officer, a plan for conducting a study to supplement its demonstration of compliance with Section 316(a) of the Clean Water Act. This study shall, at a minimum, accomplish the following:
 - (1) Assess compliance with Specific Objective 3B(3) of the Thermal Plan. The discharger shall demonstrate that the influent monitoring location represents the natural temperature of the receiving water.
 - (2) Assess the recirculation of the heated discharge into the lagoon where the plant intake is located. Using appropriate mathematical model(s) or other appropriate method(s) to predict thermal recirculation and temperatures within the ocean and outer lagoon, the discharger shall provide data and/or other information demonstrating that recirculation does not result in appreciable harm to biological communities.
 - (3) Reanalyze kelp bed data to determine impact. The discharger shall compile and analyze kelp bed monitoring data prior to (1976-1977) and during (1979-1992) operation of Encina Power Plant Unit 5. This analysis shall employ a combination of graphical and statistical methods appropriate to determine whether or not there has been a long-term decline in indicators of kelp condition that can reasonably be related to the discharge of the plant.
 - (4) If the results of the analyses described in Special Condition G.1.a.(3) demonstrate that a significant impact exists, the discharger shall conduct operational monitoring that (1) includes quarterly sampling of kelp beds using transects, and the measurement of the areal extent and density of kelp canopy, the collection of "surface clips" of the Macrocystis canopy, and the observation and recording of the macrofauna,

and (2) defines the balanced indigenous community outside the influence of the maximum plume.

- (5) Reassess impact of the plume on bottom organisms. The discharger shall conduct mathematical modeling to determine the maximum area of bottom plume impingement and areas of separation of the plume from the bottom. The discharger shall also redefine the zone of potential biological impact according to the 1980-1989 thermal studies for all habitats excluding offshore fisheries and plankton communities.

- b. The discharger shall develop and implement the study plan in accordance with the following schedule:

<u>Activity</u>	<u>Date</u>
Submit study plan to USEPA and the Executive Officer	Within 3 months of the adoption date of this Order
Begin implementation of the study	Within 6 months of the Executive Officer approval of the study plan
Submit results of the study	Within 12 months of the Executive Officer approval of the study plan

If the monitoring described in Special Condition G.1.a.(4) is determined to be required, the discharger shall submit the results of the monitoring with the annual monitoring reports.

- c. The discharger shall submit quarterly progress reports to USEPA and the Regional Board upon initiation and through completion of the study. Each progress report shall describe activities performed, problems encountered, and remedial actions taken (if any) during the previous three months and shall be submitted no later than 15 days following the end of the 3-month period.

2. Cooling Water Intake Demonstration Study

- (a) The discharger shall submit to USEPA and the Executive Officer, a plan for conducting further analyses of existing data necessary to supplement its

demonstration of compliance with Section 316(b) of the Clean Water Act. This study shall, at a minimum, accomplish the following for representative important species (RIS) or families (RIF):

- (1) Analysis of family-specific data on the entrainment losses of fish eggs and larvae. Analysis shall include the estimated monthly and annual entrainment losses for each ichthyoplankton RIF (i.e., identify the specific fish larvae and egg removals for each ichthyoplankton family considered in the study).
- (2) Analysis of family-specific data on the combined impingement (impingement at screens including removal during heat treatment) losses for each ichthyoplankton RIF. The specific ichthyoplankton losses shall be evaluated using such factors as the importance of that species in food web structure, natural mortality, the plant selectivity for that species, and potential mitigating factors to reduce the kill of that species.
- (3) Estimation of the annual equivalent adult losses from both entrainment and impingement for each critical RIS. Ichthyoplankton losses shall be evaluated using such factors as the importance of that species in the marine food web and its importance as a commercial or recreational species. The assessment shall include the use of a time reference for the impact assessment longer than the 1-day entrainment zone. The discharger may use existing zone. The discharger may use existing data collected during the original demonstration project, but shall propose an alternative approach to assess the long-term effect of plankton removal.

(b) The discharger shall develop and implement the study plan in accordance with the following schedule:

<u>Activity</u>	<u>Date</u>
Submit study plan to USEPA and the Executive Officer	Within 3 months of the adoption date of this Order
Begin implementation of the study	Within 6 months of the Executive Officer approval of the study plan

Submit supplemental
information

Within 12 months of the
Executive Officer approval
of the study plan

- (c) The discharger shall submit quarterly progress reports to USEPA and the Regional Board upon initiation and through completion of the study. Each progress report shall describe activities performed, problems encountered, and remedial actions taken (if any) during the previous three months and shall be submitted no later than 15 days following the end of the 3-month period.

H. NOTIFICATION

1. California Water Code Section 13263(g) states:

No discharge of waste into the waters of the state, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the state are privileges, not rights.

2. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any condition or limitation of this Order, is subject to a civil penalty not to exceed \$25,000 per day for each violation. Any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation of this Order, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any condition or limitation of this Order, and who knows at that time that he or she thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or

imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

3. Except as provided in Provisions E.12 and E.13, nothing in this Order shall be construed to relieve the discharger from civil or criminal penalties for noncompliance.
4. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the CWA.
5. Nothing in this Order shall be construed to preclude institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the CWA.
6. This Order shall become effective 10 days after the date of its adoption, provided the USEPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.
7. This Order supersedes Order No. 85-10 upon the effective date of this Order.

Appendix A: Endnote References

Endnote references for Order No. 94-59 (NPDES No. CA0001350), WASTE DISCHARGE REQUIREMENTS FOR SAN DIEGO GAS AND ELECTRIC COMPANY, ENCINA POWER PLANT, SAN DIEGO COUNTY.

1. See Appendix I of the Ocean Plan for definition of terms.
2. The effluent concentration limits for Ocean Plan Table B parameters were determined using the procedures outlined in the Ocean Plan and a minimum initial dilution value of 15.5.
3. The mass emission rate (MER) of a substance is calculated using the following equation:

$$\text{MER} = 8.34 \times Q \times C$$

Where MER is the mass emission rate in lb/day, Q is the discharge flowrate in MGD, and C is the effluent concentration in mg/l.

If a composite sample is taken, C is the concentration measured in the composite sample and Q is the average discharge flowrate occurring during the period over which the composite sample is collected.

4. The MER limits in this table were obtained using $Q = 862.4996$ MGD (the maximum daily combined discharge flowrate reported in the Report of Waste Discharge) and effluent concentration limits determined as specified in Endnote 2. When the combined discharge flowrate is lower than 862.4996 MGD, the MER limits shall be correspondingly lower.
5. The six-month median effluent concentration limit shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
6. The daily maximum effluent concentration limit shall apply to flow weighted 24 hour composite samples, except that total chlorine residual and grease and oil daily maximum limits shall apply to grab samples.
7. The instantaneous maximum effluent concentration limit shall apply to grab sample determinations.
8. The discharger may at its option meet this limitation as a total chromium limitation.

9. In samples obtained from marine, saline, or other waters containing bromine, total chlorine residual limitations shall apply to total residual oxidants.

a. Discharge Specification B.1

(1) The total chlorine residual effluent limitations shown are for continuous chlorine/bromine sources. The 6-month median and daily maximum effluent limitations are based on the Ocean Plan water quality objectives using the procedure described in Endnote 2. The instantaneous maximum effluent limitation is based on the USEPA BAT effluent limitation contained in 40 CFR 423 because it is more stringent than that of the Ocean Plan. MER limits are calculated using maximum flowrates and the procedures described in Endnote 3. When the flowrate is less than the maximum flowrate, the MER limit shall be correspondingly lower.

(2) If the discharge of chlorine/bromine is an intermittent discharge not exceeding two hours, the total chlorine residual effluent limitation shall be the lower of the following:

(a) an effluent limitation calculated using the procedure described in Endnote 2 and water quality objectives determined through the use of the following equation:

$$\log y = -0.43(\log x) + 1.8 \quad (\text{Equation 3})$$

where: y = the water quality objective (in ug/l) to apply when chlorine/bromine is being discharged;

x = the duration of uninterrupted chlorine/bromine discharge in minutes; or,

(b) the USEPA BAT effluent limitation contained in 40 CFR 423 (0.20 mg/l).

(3) MER limits for intermittent discharges shall be calculated using the following equation:

$$\text{MER limit (lb/day)} = 8.34 \times C \times Q \times z/24$$

where: C = effluent concentration limit as calculated from Endnote 9.a.(2) (mg/l)

Q = discharge flowrate (MGD)

z = total time (hours) chlorine/bromine is discharged per day, not to exceed two (2.0) hours per unit.

b. Receiving Water Limitation D.2

In Receiving Water Limitation D.2, objectives for total chlorine residual are for continuous chlorine/bromine discharges. Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours shall be determined using Equation 3 above.

10. The monthly average is the arithmetic mean using the results of analyses of all samples collected during any 30 consecutive calendar day period.
11. The weekly average is the arithmetic mean using the results of analyses of all samples collected during any 7 consecutive calendar day period.
12. Toxicity units are defined as follows.

Acute Toxicity

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

Chronic Toxicity

a. Chronic Toxicity (TUC)

Expressed as Toxic Units Chronic (TUC)

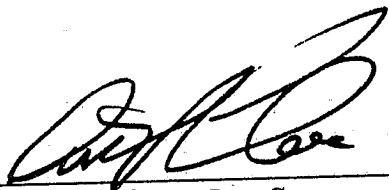
$$TUC = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix II of the Ocean Plan.

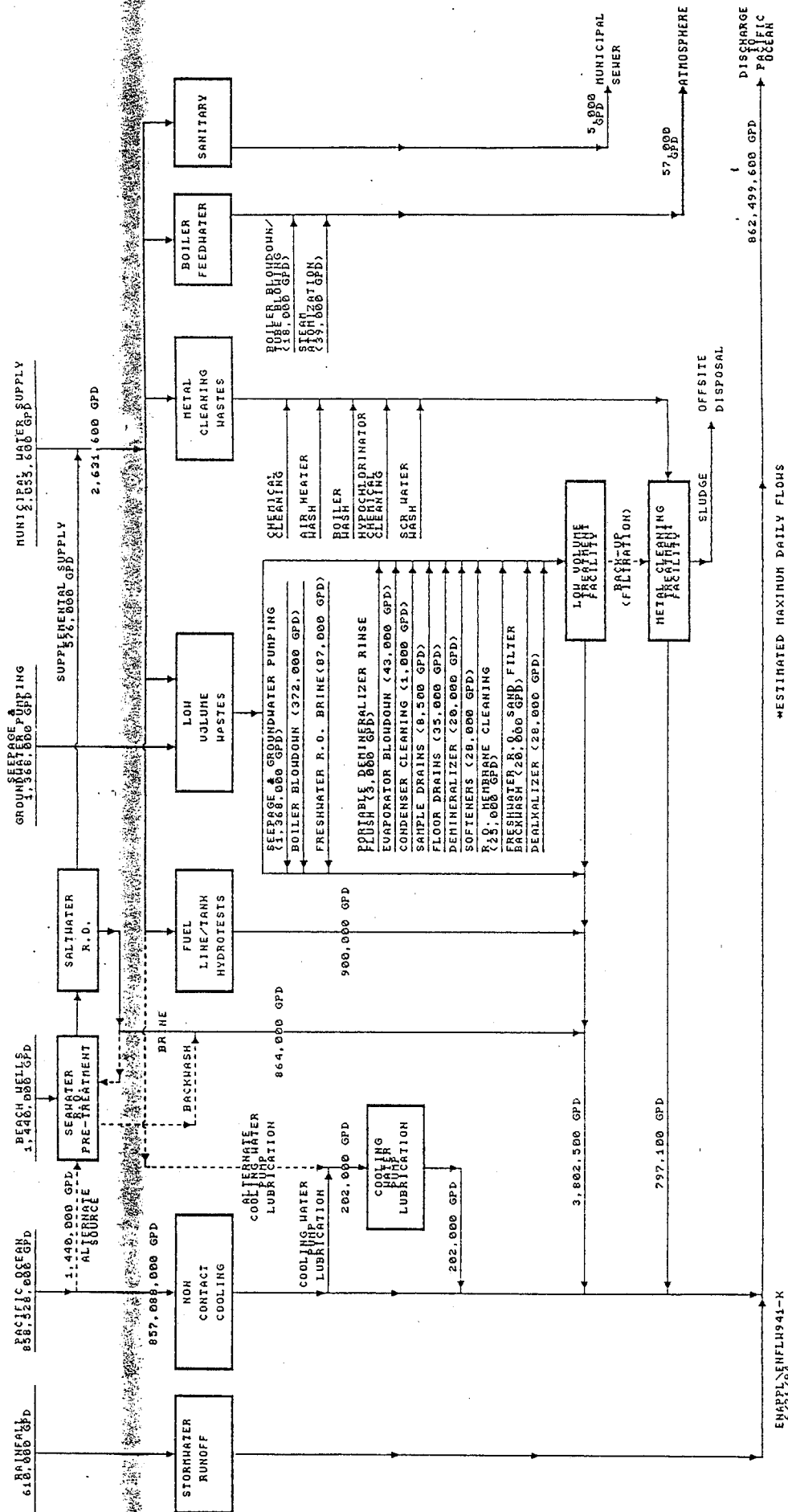
13. The MER limits in this table were obtained using the indicated maximum flowrate and effluent concentration limits from the USEPA power plant regulations contained in 40 CFR Part 423 as shown in the table. When the discharge flowrate is lower than the maximum flowrate, the MER limit shall be correspondingly lower.
14. The MER limits in this table were obtained using the indicated maximum combined discharge flowrate and effluent concentration limits determined as specified in Endnote 2. When the combined discharge flowrate is lower than the maximum combined discharge flowrate, the MER limits shall be correspondingly lower.

I, Arthur L. Coe, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on November 10, 1994.



Arthur L. Coe
Executive Officer

ENCINA POWER PLANT
CALIFORNIA
WATER MASS BALANCE
JUNE 1, 1994

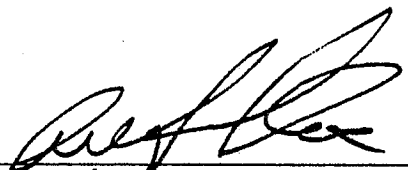


CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM NO. 94-59
NPDES PERMIT NO. CA0001350
FOR
SAN DIEGO GAS AND ELECTRIC COMPANY
ENCINA POWER PLANT
SAN DIEGO COUNTY

Until a revised monitoring and reporting program is issued,
Monitoring and Reporting Program No. 85-10 for the San Diego Gas
and Electric Company Encina Power Plant will remain in effect.

Ordered by: _____


Arthur L. Coe
Executive Officer
November 10, 1994